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AUTHOR Peters, William H.; Stuessy, Carol L.; Loving, Cathleen C.
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ABSTRACT

A collaborative of secondary teachers and administrators, university faculty, and administrators formulated a four-phase, field-based teacher education program that included: providing for self-directed experiences with adolescents; establishing an understanding of teaching and schools in modern society; developing skills to meet the needs of society and students; and developing and demonstrating teaching skills. An integrated problem solving model was generated for designing six modules as a platform for situated cognition. The model provided preservice teachers with contextualized, school-based learning experiences around problems associated with the six identified problematic areas for beginning teachers. It used problem solving to integrate students' prior knowledge and university-based instruction with school-based experiences. Three data sources helped evaluate a pilot course in the third phase: student formative evaluations, course instructor and mentor teacher formative evaluations, and a summative evaluation meeting. Overall, instructors were satisfied with students' demonstrations of learning in keeping with specified learning goals. Instructors described learning experiences that required students to reflect on their own experiences with each topic area, embed them in the larger picture, and generate questions for use in interviews with mentors. The problem solving structure provided opportunities for students to acquire knowledge from their university classrooms, peers, and teachers. (SM)

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Preparing Prospective Secondary Teachers to be Classroom Problem Solvers:

A Collaborative Model for Teacher Preparation

By

William H. Peters
Texas A&M University
College of Education
Department of Educational Curriculum and Instruction
308 Harrington Education Center
College Station, Texas 77843-4232
(979) 845-8360
wpeters@tamu.edu

Carol L. Stuessy
Texas A&M University
College of Education
Department of Educational Curriculum and Instruction
College Station, Texas 77843-4232

Cathleen C. Loving
Texas A&M University
College of Education
Department of Educational Curriculum and Instruction
College Station, Texas 77843-4232

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Preparing Prospective Secondary Teachers to be Classroom Problem Solvers: A Collaborative Model for Teacher Preparation

Introduction

A study comparing entry-level elementary and secondary education majors revealed important differences in prior teaching experiences, academic backgrounds, career plans, and professional expectations (Book & Freeman, 1986). Secondary candidates were found to have less interactions with school-aged children or to participate in teaching activities involving groups of children. In addition, they were also less likely to believe that professional education courses were important for teaching. One recommendation was that secondary teacher education programs provide early field experiences.

To create effective field-based programs, the need for collaboration between higher education and public schools is recognized (Darling-Hammond et. al., 1995). Collaboration, however, can be seen in many forms: team teaching, collaborative consultation, or types of problem solving teams (Pugach & Johnson, 1995; Welch & Sheridan, 1995). Clift and Say (1988) define collaboration "as the joint efforts of university faculty members and public school personnel to design and provide opportunities to improve teaching and teacher education" (p.2). It is this definition that became the foundation for the development of a secondary education collaborative model leading to the redesign of a secondary education preservice program at a research I university. Over a four-year period (1992-1996), a collaborative of secondary school teachers and administrators, representatives from the content disciplines, and representatives in education

formulated a four-phase field-based program (see Figure 1). Implementation of the program has occurred in stages. Prior to the spring semester of 1999, Phase I, providing for self-directed experiences with adolescents (the exploring practitioner), and Phase II, establishing an understanding of teaching and schools in modern society (the inquiring practitioner), were implemented and now continue with minor revisions. In the spring of 1999, Phase III, focusing on developing skills to meet the needs of society and students (the problem-solving practitioner), was implemented on a pilot basis. Phase IV, consisting of a two semester practicum in which students demonstrate their teaching skills (the decision-making practitioner), will be implemented in fall of 2000. Professional Development Schools provide the sites for the program.

TEXAS A&M UNIVERSITY SECONDARY PRESERVICE PROGRAM

Phase I	Phase II	Phase III	Phase IV
Self-Directed Experiences with Adolescents	Understanding Teaching and Schools in Modern Society	Developing Skills to Meet the Needs of Society and Students	Developing and Demonstrating Skills to Organize Content and Technology for Use in Classrooms
Teacher as Reflective Practitioner			
Exploring Practitioner	Inquiring Practitioner	Problem Solving Practitioner	Decision Making Practitioner

Figure 1

Phase III

The Problem-Solving Practitioner:

Background Information and Theoretical Framework

There are many unique features in Phase III of the collaboratively designed program, including the implementation of a modular format to the structure of each course.

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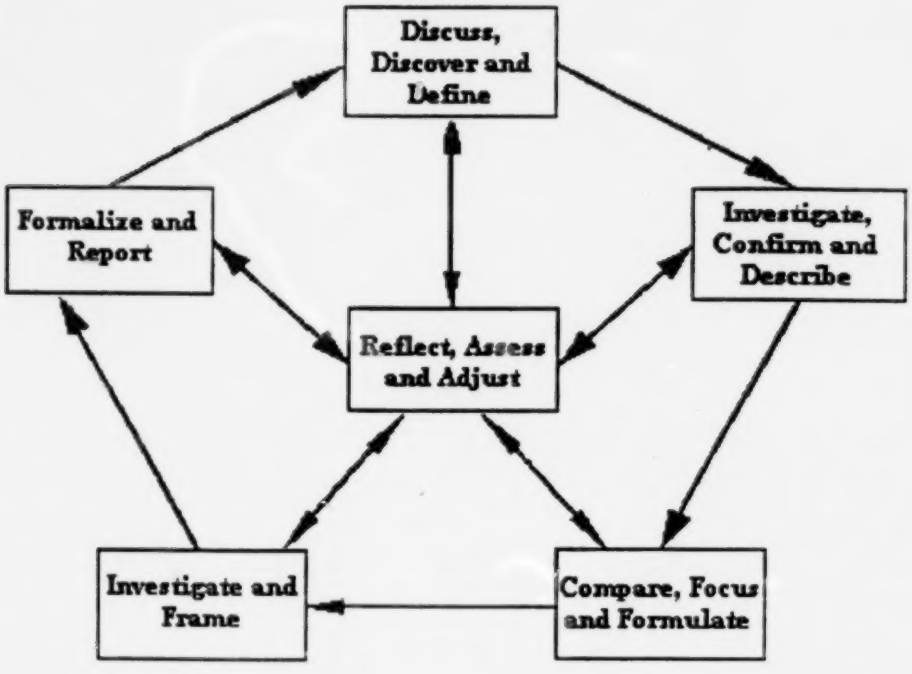
Members of the Collaborative identified six areas practicing teachers felt most problematic for beginning practitioners: Effective Learning Environments, Motivation, Ethics of Teaching, Teaching Students How to Learn, Instructional Strategies, and Student Assessment and Evaluation. Secondary school teachers and university instructors formed Phase III Design Teams around these problematic areas and met over the course of one semester to design and plan the administration of the courses. Three module topics were assigned to each of two courses, with cohorts of students enrolled in the course rotating through three modules. Teams of instructors for the modules included members of public school faculty and members of different departments within and outside the College of Education, resulting in collaborative teacher education classes.

A unique feature of this phase of the program is the theoretical framework chosen to guide the design of each of the modules. A problem-solving format was used for module design in which three types of knowledge were integrated. These types of knowledge are known to often come into conflict as preservice teachers are required to complete traditional teacher education programs: *prior knowledge*, which reflects preservice teachers' preconceptions about teaching and learning that come from their own experiences as learners in classrooms; *theoretical knowledge*, which reflects the increasing knowledge base about teaching and learning derived from psychological, sociological, and educational research during the past half-century; and *relevant knowledge* about teaching and learning, which reflects the knowledge of teachers (the *action-guiding knowledge* of Korthagen & Kessels, 1999) that comes into play when teachers must generate quick and concrete answers to situations in which they have little time to think or reflect on the more theoretical aspects of what they know about teaching and learning.

The Integrated Problem-Solving Model

The following integrated problem-solving model was generated for the design of the six modules to provide a platform for situated cognition (see, for example, Putnam and Borko, 2000).



This model synthesizes Teaching as Reflective Problem Solving and Teacher as Action Researcher/Analyzing and Synthesizing Multiple Sources of Data into a curriculum format that undergirded the six modules. The model provides preservice teachers with contextualized, school-based learning experiences around problems associated with the six identified problematic areas for beginning teachers. The model uses problem solving to integrate students' prior knowledge and university-based instruction with school-based experiences. In each module, problems are identified and data collected as first stages in the

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problem-solving process. The Design Teams for each module used the integrated problem-solving model to plan four-week modules on each of the topics.

Implementing the Model

All modules used problem-solving for the course format. For example, in the Student Assessment module, prospective teachers first discuss, discover and define student assessment; they investigate potential problem areas regarding student assessment from the viewpoints of their mentor teachers in the public school classroom; they then identify issues and examine different sides of the issue from the viewpoints of teachers, students, and other support staff in the school; they design a vignette that focuses on a particular issue and gather evidence from others who may express alternative viewpoints about the vignette; and they develop a personal philosophy about student assessment that includes a list of guiding principles and oversight procedures designed to protect students. On the basis of that philosophy, prospective teachers write a resolution to their group's vignette, and they connect their philosophical stances to the resolution of the issue, supported by 5-7 outside sources. As a final portfolio product, they produce a list of guiding principles (Wiggins, 1993) for their use and refinement during their practicum experiences in Phase IV and beyond.

Student Assessment Learning Goals

The learning goals of the Assessment Module consist of the following four Knowledge Statements (KSs) and their associated Performance Expectations (PEs): Students who complete this module will:

KS.1. Have a conceptual understanding of student assessment that includes the purposes, roles, forms, and appropriate uses of formative assessments, evaluation, summative assessments, authentic assessments, objective tests and subjective tests, scoring,

feedback, and grading procedures. *They will be able to :*

PE1.1 Identify teacher-made assessments as to purpose and type

PE1.2 Define, identify, and differentiate among and between purposes, roles, uses, and forms of assessments

KS.2. Understand the multicultural, moral, and ethical dimensions of student assessment. *They will be able to:*

PE2.1 Identify moral and ethical dimensions of assessment

PE2.2 Identify multicultural issues underlying assessment decisions made by teachers

PE2.3 Express their own beliefs about the morality and ethics of assessing students

PE2.4 Provide examples of assessment issues that have multicultural, moral, and ethical dimensions

PE2.5 Generate examples of assessment situations that provide opportunities for others to explore positions other than their own on multicultural, moral, and ethical issues

KS.3. Understand that the practices used by teachers in assessing their students' performance reflect their own philosophy of assessment. *They will be able to:*

PE3.1 Develop their own position on student assessment based on a set of beliefs that is coherent and thorough

PE3.2 Generate a list of justifiable "guiding principles" for "testing their tests" in assessing student performance that are based on the theory and practice of testing and assessment

KS.4. Understand that reflective teachers constantly question their own practices in assessing their students' performance. *They will be able to:*

PE4.1 Use their own guiding principles of student assessment to resolve an issue

PE4.2 Develop a list of general questions that allow them to reflect on their practices as matters of principle

PE4.3 Seek to understand alternative points of view that may exist in regard to one's own assessment practices and the assessment practices of others

Curriculum Audit for Assessment Module

Assessments and Learning Experiences	Performance Expectations
Session I	
Write a definition of assessment	PE1.1, PE1.2
Key words and phrases on the board	
Overview	
Rough draft of teacher interview	
Summary of teacher's responses	
Bring back copies of teacher-made assessments	
Session II	
Examine and identify teacher-made assessments	PE1.1, PE1.2
Emerging issues	PE2.1, PE2.2
Rough draft of interview notes	
Paragraph summaries of interviews	
Session III	
Develop a vignette	PE2.4, PE2.5, PE4.3
Rough draft of collected data	
Group synthesis/summary of group data	

Session IV

Group presentation of vignette

Group synthesis/summary of group data

Final Product

Graded by rubric

Three parts

* Personal philosophy re: student assessment PE2.3, PE3.1
* List of guiding principles, including audit and/or oversight procedures PE3.2, PE4.2
* Your resolution of group's vignette with connections to philosophy PE4.1

Evaluation of an Integrated Model for Teacher Preparation

Three sources of data were used to evaluate the pilot courses in Phase III: (1) student formative evaluations; (2) formative evaluation meetings of course instructors and mentor teachers from the public schools; and a (3) summative evaluation meeting. Formative data collected during the course of the semester consisted of open-ended formative evaluation questionnaires administered to students at the end of each four-week module and comments and opinions from course instructors and mentor teachers. Data from these evaluations were analyzed to answer three questions about student learning in the courses: (1) Did students meet the learning expectations in the courses? (2) Were students asked to build on their prior knowledge? and (3) What did students learn and from what sources?

The findings suggested instructor satisfaction with their students' demonstrations of learning in keeping with the intended learning goals that were specified in each of the module syllabi; module instructors described learning experiences that required students to reflect on their own experiences regarding each of the topic areas, embed them in the larger picture of the topic area, and generate questions to be used in interviews with their mentor teachers; and the problem-solving structure for the modules provided opportunities for students to acquire knowledge from their university classroom learning experiences, from their peers through class discussion, issues clarification, and project planning and implementation, and from their mentor teachers and classroom observations.

Significance of Findings

The pilot semester of Phase III reflects a promising process for integrating practical knowledge about teaching and learning from university and public school learning experiences. University modules that include classroom teachers, either as members of the instructional team or as guest speakers, will increase perceptions of relevance in learning. Coupled with meaningful, well-planned field experiences, new knowledge from university classes can be integrated with prior knowledge about teaching and learning. To reinforce learning from all sources, modules should provide field experiences that directly relate the university course work and include problem identification and solution in the topic of study. A model such as that proposed in this paper that integrates three types of knowledge in a problem-solving format builds the capacity for problem-solving and a readiness for decision-making.

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